

# THE SCIENCE NEWS-LETTER

*A Weekly Summary of Current Science*

EDITED BY WATSON DAVIS

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No. 82

Saturday, November 4, 1922

(A Chat On Science)

## LOOK OUT FOR ALPHA CENTAURI!

By Dr. Edwin E. Slosson

As if we did not have enough to worry about, what with winter coming on and coal so short and clothing so high, here comes along Professor Ellsworth Huntington of Yale with a book on "Climate Changes" which warns us that the stars in their courses may fight against us. He has a theory that the glacial epochs and the lesser disturbances of the earth's climate are largely due to prior disturbances in the sun's atmosphere and these in turn may be caused by the approach or increased activity of certain stars. All the stars, including our sun, are in radio communication with one another, and when one flares up over something it arouses responsive excitement in all the others within range. Then, too, the stars are not "fixed", as we used to think, but are wandering about in various directions, and when two stars come close enough together they become mutually inflamed by the proximity and may become permanently attached.

Now the nearest star to us is the brightest one in the Centaur constellation, therefore named Alpha Centauri. It is only about 25 trillion miles away and its light takes four and a third years to reach us. Alpha Centauri is not only big and bright and relatively near, but it is triple and variable. Its two main components are like two suns the size of ours, revolving around one another every 81.2 years. When they are closest they are 1,100,000,000 miles apart and when their orbits separate most widely they are three times as far as that from each other. It is when the twin stars are nearest that we should expect them to be most active in sending out light waves and electrons. These reaching the sun might set up wild whirlings in the solar atmosphere, which would appear to us as an unusual abundance of sunspots, and would affect the weather on the earth.

The dates when the two bright spheres of Alpha Centauri were nearest together and most radiant are 81.2 years apart and these fall on the years 1388, 1469, 1550, 1631, 1713, 1794, 1875 and 1956. Comparing these with the records of sunspots, which have been kept only for the last century and a half, we see that such evidences of solar disturbances were most evident in periods ending in 1794 and 1875, and that another period of high solar activity started in 1914 and may be expected to end about 1956.

If this theory of stellar influence is true we may expect something to happen somewhere between 1950 and 1956. What it will be Professor Huntington does not venture to surmise, but he reminds us that in the years preceding 1388, when Alpha Centauri was active, Europe was a very uncomfortable place to live in. There were droughts and floods, famines and freezings. The Baltic was frozen so that horse sleighs could cross from Germany to Sweden, and the Danube and the Rhine sometimes

inundated the cities on their banks and sometimes nearly dried up.

There are more serious grounds for suspecting Alpha Centauri of a malign influence on the earth for that star was nearest to the earth 28,000 years ago, being then only 3.2 light-years away. Now this is the date that geologists have set for the end of the last Great Ice Age so the approach and proximity of Alpha Centauri may have had something to do with that spell of cold weather which came near freezing out the human race. The world is even yet convalescing from the chills of the Glacial Epoch. Greenland which once was really green with ferns and figs is still covered by an ice cap.

We need not fear another glacial age from the same cause for Alpha Centauri is now 4.3 light years away and leaving us at the rate of thirteen miles a second. But Sirius is due in this vicinity in 65,000 years and that would be quite as - I should say, might be equally bad for us.

But Professor Huntington endeavors to console us by reminding us that the human race not only survived several such periods of climatic stress but has come out of them in each case stronger and better for the struggle for existence. He is a firm believer in the value of stormy weather. He is a New Englander.

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SAY C-2 COULD NOT USE HELIUM

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The C-2 which met disaster near San Antonio is the third American airship to be destroyed within two years.

If the C-2 in its transcontinental trip had used helium instead of hydrogen, the loss of this precious gas costing twelve to fifteen times as much as hydrogen would have been considerable. Helium also has one-tenth less lifting power than hydrogen and the C-2 could not have carried as much fuel if it had been helium inflated. When the Navy ship C-7 demonstrated the use of helium in an airship last year the loss of helium was small, but this was accomplished by keeping the altitude of flight lower than 500 feet. The C-2 in crossing the continent had to rise to much higher altitudes causing greater losses of gas. New ships will be built with devices to prevent high helium waste.

The Fort Worth, Texas, helium plant that is being run by the Navy just began operation again on Oct. 1 under the appropriations that were made available by Congress for this year following the explosion of the Roma which like the C-2 was filled with hydrogen.

While the ZR-1 now building at Lakehurst, N.J. was begun too early to be designed for helium, it is understood that the smaller army ships now being built will be inflated with helium.

The most dangerous portion of an airship, the part that produces the spark that inaugurates disaster is the gasoline fuel, it is declared. Inflammable hydrogen

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JAN 10 1951  
U. S. DEPARTMENT OF COMMERCE  
BUREAU OF STANDARDS  
WASHINGTON, D. C.



January 10, 1951

TO THE DIRECTOR  
BUREAU OF STANDARDS  
WASHINGTON, D. C.

Dear Sir:

I am writing to you regarding the matter of the Bureau of Standards' participation in the International Union of Pure and Applied Chemistry (IUPAC) meeting held in Washington, D. C., in 1950. The Bureau of Standards has been invited to participate in this meeting, and it is my pleasure to inform you that the Bureau has accepted the invitation.

The IUPAC meeting is a major international conference of chemists, and it is an honor for the Bureau of Standards to be invited to participate. The meeting will be held in Washington, D. C., from September 1 to 10, 1951. The Bureau of Standards will be represented by a delegation of four members, including the Director, who will be the head of the delegation.

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fired by the engines simply adds to the disaster. While this may not have been the case in the C-2 accident, an engine using heavy fuel oil rather than light explosive gasoline is being perfected by the National Advisory Committee for Aeronautics and will eventually do away with this menace.

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#### FIVE ARMY SHIPS BUILDING TO USE SAFE HELIUM

The burning of the hydrogen filled Army dirigible C-2 at San Antonio, has aroused discussion as to the availability of the nonflammable gas, helium, and the advisability of its use in all the government's lighter-than-air craft.

At the present time there is about enough of this expensive helium gas to allow one airship to operate and none of the dirigibles in commission are especially designed to use it. Several of the ships ordered and in course of construction will be filled with the non-explosive lifting power, with special devices to bring down the ship without the necessity of valving out the precious element.

Three helium dirigibles of approximately the same size as the ill-fated C-2 are now being built for the Army by the Goodyear Rubber Company at Akron, Ohio. These machines will have a capacity of 200,000 cu. ft. whereas the C-2 had a capacity of 172,000 cu. ft., the larger size of the new ships' envelopes being necessary to compensate for the smaller lifting power of helium gas. Two other smaller helium ships of 130,000 cu. ft. capacity will be made to take the place of hydrogen-filled dirigibles now in commission.

The Navy is using helium at the present time in the C-7 of 130,000 cu. ft. capacity for experiments to secure data as to pressure and stress under various conditions as an additional check on the design of the large dirigible, ZR-1, which is expected to be finished next June, and which is being built along the lines of the most successful German ships which had a record of thousands of miles safe traveling. The ZR-1 was not designed especially for inflation by helium gas, but Navy officials say that this large ship with a gas capacity of 2,115,000 cu. ft. probably will be inflated with helium when commissioned though its range will be limited by this procedure.

The ZR-3, which is being built for the Navy by Germany in part payment of the reparation claims owed to this government has been designed for the use of hydrogen, and German engineers insist that the advantages of this gas more than compensate for the disadvantages of the lesser lift and great expense of helium. Whether the design will be altered or this ship inflated with helium when delivered, Navy men are unable to say at this time.

The Navy has an appropriation of \$400,000 for the production and research work on helium which has been pooled with a like amount appropriated to the Army. The U. S. Bureau of Mines is cooperating with the Army and Navy. The helium supply is limited and it is estimated can not last more than 25 years. At the present cost of production it would be prohibitive to commercial machines, and it has been urged that this precious gas on which we have a monopoly should be stored for use in case of war and not employed in peace time flying by any branch of the government.

Many aviation men claim that helium has been over-advertised as a result of its practical development during the war. Until some other source is found from which this gas can be obtained, it is believed that hydrogen, which has been successfully used both in this country and Europe with small fatalities when mileage is considered,

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offers the brightest prospects for the further development of lighter-than-air craft.

Army dirigibles at present in commission and designed for hydrogen are: 2 "D" type, 180,000 cu. ft.; 1 military "AC" type, 180,000 cu. ft.; 2 "C" type, 172,000 cu. ft.; 2 "SST" type, 100,000 cu. ft.; 1 "A" type, 95,000 cu. ft.; 1 Pony Blimp, 35,350 cu. ft. All of these except the Military "AC" type have been in service some time and will be replaced by the five helium ships and one Zoliac of 326,500 cu. ft. and one semi-rigid of 700,000 cu. ft., now on order.

#### DIFFICULTIES IN PRESENT USE OF HELIUM FOR DIRIGIBLES

~~The use of hydrogen as the lifting gas for airships presents many more difficulties than are at first apparent to the non-technical observer.~~

The use of helium as the lifting gas for airships presents many more difficulties than are at first apparent to the non-technical observer. This light inert gas that 50 years ago was first discovered in the sun is still in the stage of experimental production and only one airship of any size, the C-7, has been flown while helium inflated.

The Government plant at Fort Worth, Texas, for helium production has this month begun isolating this gas after being idle since Dec. 1, 1921. Its capacity for extracting the nine-five hundredths of one per cent. of helium from the natural gas flowing out of the wells of Petrolia, Texas, and turning it into over 95 per cent. pure helium has yet to be determined. It is estimated, however, that the plant, if operated at capacity, will yield 7,200,000 cu. ft. of helium per year. The plant was operated at full tilt for only twenty days during the eight months of 1921 while it was producing.

At the present time about 2,000,000 cu. ft. of helium are in existence and in possession of our Government, but not all of this is of sufficient purity to use in ships.

If a ship of the type of the demolished C-2 were held aloft with helium and had to rise to heights of 10,000 feet, as in crossing the Rockies, it would be possible to fill the ship only seven-tenths full of helium on the ground in order to prevent a helium loss of 30 per cent. of the full capacity of the bag each time the ship ascended to that height. This means that the ship would have less than 70 per cent. of its lifting power and this loss would be compensated for by carrying less fuel and consequently having a shorter cruising radius. As helium has only 90 per cent. the lifting power of hydrogen, volume for volume, the gas bag must be made about a tenth larger. Devices are planned for new airships that will compress the helium instead of allowing it to escape into the air when ascending.

The practice in handling hydrogen-filled ships is to waste the comparatively cheap gas when the bags are deflated or when the hydrogen becomes too greatly diluted with air. Helium, because of its scarcity and its expense, must be used over and over. Helium after use can be compressed and stored in cylinders and impure gas must be repurified by processes similar to that used in its extraction from natural gas. Purifying units would have to be used at every airship landing field and home station. Several portable repurification plants have been constructed by the Army with the cooperation of the Bureau of Mines.



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## INVENT NEW METHOD FOR HELIUM RECOVERY

A simpler and cheaper method of recovering pure helium from natural gas in only one liquefying operation has been perfected by the U. S. Bureau of Mines at Washington, Dr. H. Foster Bain, director, has announced in a statement to the American Chemical Society.

Whereas the helium plants erected during the war and the government Fort Worth plant now in operation put the helium through two processes to make it of sufficient purity for balloon use, trial runs made within the last monthh in the Bureau of Mines cryogenic laboratory using perfected apparatus promise the easier, more direct method.

"The development indicates that commercial production of helium for lighter-than air craft is probably feasible," says Dr. Bain.

The new achievement consists in more quickly and more completely liquefying all of the nitrogen and other contaminating gas in the natural gas containing helium. The helium-bearing natural gases are compressed and as the flammable methane and other gases all liquefy at higher temperatures than helium, when the process reaches a very low temperature only the very pure helium remains. A semi-commercial plant will next be erected to bring into quantity production the successful laboratory method.

Large quantities of helium are wasting into the air every minute through the burning of natural gas containing helium. It is expected that Congress will consider legislation at the coming special session to capture this irreplaceable natural resource.

Helium-research work is directed by the United States Helium Board, composed of: Lieutenant Commander F. M. Kraus, representing the Navy, Colonel R. P. Fravel, representing the Army, and Doctor R. B. Moore, chief chemist of the Bureau of Mines, H. S. Mulliken, production engineer, alternate. The actual work of development was directed by a group of men known as the Board of Helium Engineers, with the following membership: M. H. Roberts, Franklin Railway Supply Co., R. C. Tolman, physical chemist of the California Institute of Technology, W. L. DeBaufre, University of Nebraska, Edgar Buckingham, of the U. S. Bureau of Standards and John W. Davis of the Bureau of Mines.

Several laboratory staffs cooperated in the work, researches having been made under the direction of Dr. Frederick Keyes at the Massachusetts Institute of Technology, Dr. Harvey N. Davis, Harvard University, and by the workers in the cryogenic laboratories under the direction of Dr. R. B. Moore and Dr. L. L. Shaw, assistant chief chemist. The cryogenic laboratory located in the Department of Interior Building at Washington is the best equipped workshop in the world for experiments and studies on liquifaction problems.

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READING REFERENCE- Detroit meet and flying library service. U. S. Air Service, vol. 7, p. 7-8. Oct. 1922. Moore, R. B. Helium. Aerial Age, 15:446-7. Sept. 1922. Marks, Lionel S. The Airplane engine. N.Y. McGraw-Hill Book Co., 1922.

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1. The first part of the report deals with the general situation of the country and the progress of the work during the year.

2. The second part of the report deals with the results of the work done during the year and the progress of the various projects.

3. The third part of the report deals with the financial statement and the accounts of the various projects.

4. The fourth part of the report deals with the conclusions and recommendations of the committee and the progress of the work during the year.

5. The fifth part of the report deals with the conclusions and recommendations of the committee and the progress of the work during the year.

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## STUPID, FEARLESS ELEPHANT SEALS NEED TREATY

A treaty between the United States and Mexico is being urged to prevent slaughter of surviving members of elephant seal, fur seal and sea otter herds that formerly inhabited the waters off lower California in great abundance. The need of international regulation of such helpless sea life was shown by an expedition sent out during the past summer by the Committee on Conservation of Marine Life of the Pacific Division of the American Association for the Advancement of Science.

Only 261 elephant seals, which are among the strangest and most remarkable of all mammals, were found on Guadalupe Island by the expedition, headed by Dr. G. Dallas Hanna, which also had the cooperation of the California Academy of Sciences, the San Diego Society of Natural History, the Scripps Institution for Biological Research, the National Geographic Society, and the National Research Council and the Government of Mexico. This species, which has considerable commercial value, was several times thought to have been completely exterminated by hunters sailing from the United States and the finding of this small remnant has given the scientists hope that this animal, that does not exist elsewhere in the world, may be preserved for future commercial use and scientific study.

"Elephant seals are so stupid and so fearless of man that the whole herd could be easily destroyed in a very short time," says Dr. Hanna. "They should be given protection on the high seas as well as on land and in territorial waters. Elephant seal oil has been taken in large quantities and used for the same purposes as whale oil and the skins have been used for leather. These animals do not injure man, directly or indirectly. Their grotesqueness makes them of much value for exhibition purposes in museums and zoological parks. For commercial and aesthetic reasons, the species should be preserved."

Treaty protection may come too late to preserve even a single individual of the herd of more than 100,000 fur seals that inhabited the old rookery grounds on the island. So far as actual knowledge goes, the species is extinct. It was slaughtered by fur hunters who found the skins were almost as valuable as the celebrated Alaskan fur seal. But an international agreement may preserve some flock that may exist unknown to man in some secluded part of the Mexican islands.

Sea otters that lived in large numbers in the water of the California and lower California coasts but which are now on the very verge of extinction would also be protected by the American-Mexican treaty.

The scientists also propose that the fur-seal herds in Australia, New Zealand, South Africa, Ecuador, Peru, Chile, Argentina, Uruguay and elsewhere in the southern hemisphere be given adequate protection on the high seas. A treaty between the United States, Great Britain, Japan, and Russia entered into in 1911 has effectively increased the size of the Alaskan herds, and they believe that similar results can be obtained from further agreements.

When such a general fur-seal treaty is considered by an international conference, Dr. Hanna suggests that the time would be opportune to negotiate a general treaty for the protection and conservation of sea otters, sea elephants, sea lions, whales and other species of marine life whose habitats lie wholly or partly in the high seas.

Chimneys and smokestacks at Salt Lake City must be built from 10 to 20 per cent higher than is necessary at sea level, because of the diminished atmospheric pressure.



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## FISH MUST KEEP FIT TO FIGHT OFF GERMS

The poor fish! Now it is discovered that the finny inhabitants of our fresh waters are subject to attack from a deadly germ disease. H. S. Davis, U. S. Fish-pathologist of the Fairport, Iowa, Biological Station, has found evidence that this bacterial infection is the most important agent in the destruction of fishes which have become injured in any way.

Most of the small fish caught on the angler's hook and thrown back to grow up into sizable flappers, Mr. Davis believes, probably succumb to the germs. If a fish is injured or its vitality lowered in any way, the bacillus columnaris gets in its work. The young of any species are likely to suffer more than the adults.

Like the pneumonia germ in man, this fish disease germ is able to live in small numbers on perfectly healthy fish without injuring them. When the bodily resistance is lowered, however, they can increase rapidly. Most kinds of fish are subject to attack, but some are more susceptible than others, but a fish is more likely to contract the disease from one of its own kind than from some other species.

An epidemic spreads better in warm water, but it is doubtful if the germs can live for any length of time off the fish. The bacteria grow only on the surface of the body or the gills, the infection of the gills being much more quickly fatal than on the body surface. Rescue treatment worked out by Mr. Davis consists in placing the infected fish in a one to 1,000 solution of copper sulphate for one to two minutes.

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READING REFERENCE- Notes on the flesh parasites of marine food fishes. Washington, Government Printing Office, 1910. U. S. Bureau of Fisheries Doc. no. 714.  
Pacific fisherman yearbook, Jan. 1922. Seattle, Wash.

## NEWS OF THE STARS

Wanted: Positions of 100,000 Stars

By Isabel M. Lewis,  
Of U. S. Naval Observatory.

The astronomers have a big job laid out for them. Forty years ago the positions of 100,000 stars were determined. Now Dr. Frank Schlesinger, director of the Yale University Observatory believes that the locations of these many suns in the heavens should be observed and recorded again.

Not that the observations of two score years ago were inaccurate; astronomers are so satisfied that they are correct that they intend to compare the proposed measurements with the earlier ones.

This comparison may throw new light on the form of the space that surrounds us; it may indicate whether the stars about us form a true universe or whether two separate entities are concerned. Dr. Schlesinger says: "Perhaps in the whole domain of physical science there is today no problem of greater philosophical import."

If the project were completed, astronomers would then be in possession of the motions across the line of sight of over 100,000 stars showing how far and in what direction across the heavens each of these stars has moved in the forty years that have elapsed since its position was recorded in the Astronomische Gesellschaft catalog.

Until a quarter of a century ago it was a general belief that the stars were mov-

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ing in an entirely haphazard manner. In 1904 the noted Dutch astronomer, Prof. J. C. Kapteyn, who died recently, showed that observed proper motions of stars pointed to the existence of two intermingling star streams or drifts with a relative velocity of about twenty-five miles per second. Shortly after this, Dr. Schwarzschild found that the proper motions could be accounted for by an alternative hypothesis that the stars all form a single group in which the motions are more frequently parallel to a principal axis than at right angles to it. He considered this an indication that the stars are arranged in one ellipsoidal system.

Neither of these hypotheses entirely fits in with all the available data derived from a consideration of the individual motions of the stars nor explains the tendencies of the stars to form into local groups and moving clusters as well as into more extensive streams or drifts. There is for this reason, Prof. Schlesinger believes, a real need for many more determinations of motions of the stars by comparing their old and new positions.

Locating 100,000 or more stars as proposed would now be well within the capabilities of a few or even of a single observatory, he considers. If wide angle doublet cameras were used there would be at least a two-fold gain in accuracy. The gain in economy of effort would be still greater and a hemisphere could be covered by the new method with as little effort as was required to cover a single zone of narrow width by the method formerly used.

#### HAWAII HAS DOZENS OF DIFFERENT CLIMATES

There is no such thing as the one climate of Hawaii. Dr. Stephen Sargent Visser, of the University of Indiana, has reported to the American Meteorological Society that in Honolulu alone there are a dozen different climates as shown by data of the Weather Bureau.

Within the limits of that city, the average rainfall varies from less than 25 to over 90 inches. Within four miles of the central station with its 31 inches of rain, a suburban station at an elevation of 1360 feet has an average of 106 inches.

Within 17 miles of what appears to be the rainiest rainfall station in the world, Mt. Waialeale on the island of Kauai, with an annual average of 500 inches, there is Waiawa which receives only 22 inches. Some 4600 feet up, Maui has a five-year average of 245.8 inches while Punhele ten miles southeast has a five-year average of 15.9 inches.

#### DO YOU KNOW THAT

The odor of cinnamon is due largely to the presence of about 2 per cent of a volatile oil containing cinnamic aldehyde.

The average molecule is less than the  $1/125,000,000$  of an inch in diameter.

A grain of musk will scent a room for several years, yet not lose one-millionth of its mass in a year.

Belgium is the most densely populated country on earth; having 666.22 inhabitants to the square mile, while Japan has 383 and China only 99.96 inhabitants per square mile.

Products canned with boric-acid canning powder have been shown to be deleterious to chickens.



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## BIRD MYSTERIES PROBED BY EXPERTS

The great mystery of bird migration, which has been studied by naturalists for thousands of years, was the principal topic when the American Ornithologists' Union held its fortieth meeting at Chicago, October 24 to 26.

Records obtained from bird-banding are throwing interesting new light on this age-old wonder. Still the interest grows as startling new facts are being brought to light by these records. A blue teal duck banded near its breeding round in Maine has been located later near the mouth of the Niger river in Africa. Many North American birds have been traced to their winter home in South America, while it has been discovered that other of our common birds will fly for hundreds of miles and then come back year after year to the same State, county, farm, field, and into the same trap where the little markers were placed upon their legs.

The effect of shortening of the daylight as one of the things which starts the calendar-like regularity of the movement of birds was discussed at the meeting. Scientists are planning to use the slow motion picture to analyze the action of the feathered flyers and throw light upon some of the hitherto hidden secrets of their lives.

## FINDS STRANGE CASE; BIRD CHANGES COAT

The leopard may not be able to change his spots, but the feathers on the ground finch of Chimbo Valley in western Ecuador have changed their color. This mystery was explained to the American Ornithologists' Union meeting in Chicago by Dr. Frank M. Chapman, Curator of Birds, of the American Museum of Natural History.

The ground inhabiting finch ranges from Mexico to southern Peru. In all this 5,000 mile stretch of country these birds have a conspicuous black throat-band and underparts of gray and white. This is the case everywhere except in one small river valley where the bird loses its black collar and becomes almost entirely white.

Dr. Chapman said that this different dress was not due to environment, but one of the rare instances in which such a change had been detected in birds. The mutation which spontaneously occurred has simply become permanent and specific through the isolation of this group of birds.

READING REFERENCE; Chapman, Frank Michler. The travel of birds; our birds and their journeys to strange lands. N.Y. D. Appleton & Co., 1916. Allen, A. A. Home life of birds, nest building and egg laying. Bird Lore 24:232-41 July, 1922. Job, H. K. Sport of bird study, N.Y. Macmillan, 1922. Howard, H. E. Territory in bird life. N.Y. Dutton, 1921.

## FORD ENGINE BECOMES MUSEUM MATERIAL

One of the four liberty engines which propelled the Navy seaplane NC-4 on its epoch making trans-Atlantic flight in May, 1919, has been added to aircraft exhibit in the U. S. National Museum at Washington. This particular Liberty engine was made by the Ford Motor Company.

Well-to-do and prominent men in South Africa prefer motorcycles to other motor vehicles on account of the high cost of gasoline in that country.

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### TABLOID BOOK REVIEWS

"The Evolution of Man" containing "The Antiquity of Man" by Richard Swann Lull, professor of Vertebrate Paleontology in Yale University, "The Natural History of Man" by Harry Burr Ferris, professor of Anatomy in Yale University, "The Evolution of the Nervous System of Man" by George Howard Parker, professor of Zoology in Harvard University, "The Evolution of Intelligence" by James Rowland Angell, President of Yale University, "Societal Evolution", by Albert Galloway Keller, professor of the Science of Society in Yale University, "The Future of Evolution", by Edwin Grant Conklin, professor of Biology in Princeton University. pp. 202. Yale University Press, New Haven, Price \$3.

The book for the times. A clear and temperate statement of what is known and thought about evolution in its various aspects by modern scientists. Just the information that the perplexed layman needs in this period of controversy over fundamentals.

### FIND FAT IN FOOD NOT ABSOLUTELY NECESSARY

No longer can it be insisted that fat is a necessary constituent of the food. Dr. T. B. Osborne and Prof. L. B. Mendel of Connecticut Experiment Station and Yale University, respectively, have obtained normal growth with white rats which were fed on a diet containing only a trace of fat. These investigators state that "if true fats are essential for nutrition during growth, the minimum necessary must be exceedingly small."

People with tendencies toward obesity need not rejoice with the hope that a fat free diet may be their salvation, for starches and sugars when eaten in larger amounts than necessary to supply the body with fuel are just as efficient fat formers as fat itself. Although a dispensable constituent of the diet, fat is, however, a useful one, especially in cookery. One pound of fat supplies more energy than any other foodstuff. If we eliminate fat from the diet, we must supply the deficiency by an amount of another foodstuff equal to it in energy value.

READING REFERENCE- Sandwall, A. W. Fats and their value in the diet. Mass. Dept. of Public Health. Boston, 1921. Langworthy, Charles F. Studies in the digestibility of some animal fats. Washington, Government Printing Office, 1917. (U.S. Dept. of Agriculture Bulletin 507, Professional paper.)

### BONES IN HAITI CAVES STORED BY GIANT OWLS

Bone deposits from prehistoric animals unearthed last year by the U. S. Geological Survey in caverns northeast of the town of St. Michel de l'Atalye in Haiti and suspected of being the remains of a feast by pre-Columbian man have been examined by Gerrit S. Miller, Jr., Zoologist of the Smithsonian Institution and declared to have probably been collected by a giant owl now extinct.

The remains of rodents too large to have been carried into the caves by any owls now living were found. Among these bones, however, were found parts of a predatory night bird the size of which indicate that this owl was fully equal to the task. The deposits in the cave have none of the features commonly seen in heaps of human refuse.